

and aedeagus. The maculations of the forewings may resemble those of *L. solidus* (Hag.).

I have females of two species from Costa Rica and Guatemala, either of which may be the other sex of this species. But, because there is no way of definitely associating either with the type, I prefer to leave the designation of allotype until more material has accumulated.

Male.—Length of forewing 13 mm.; rather uniformly yellowish-brown. Forewings pale yellowish-brown with darker irrorations most noticeable along the veins, especially anally and at the anastomosis; membrane with many pale decumbent hairs, a few erect dark setae on veins basally and anally. Basal segment of fore tarsus about $\frac{1}{2}$ length of second segment. Posterior margin of eighth tergum with a scabrous patch. Ninth segment slightly inflated laterally. Clasper projecting distinctly from posterior margin of ninth segment; apex slightly excised so as to form 4 points as seen from the posterior, one at each corner. Cereus trianguloid, posterior margin nearly vertical, black, and with several blunt teeth mesally. Tenth tergum low, extending no farther posteriad than cereus, with a low dark ridge apicodorsally. Aedeagus with lateral arms spine-like, upcurved, and with a short spine-like seta at midlength; central tube with apex produced into a pair of sharp decurved hooks laterally and a weaker hook mesally.

Type.—Holotype male, Mount Poas, C(osta) R(ica), March (Wm. Schaus). USNM type 64990.

Limnephilus frijole Ross

Limnephilus frijole Ross, 1944, Bull. Ill. Nat. Hist. Surv. 23(1): 282; Ross, 1949, Pan-Pacific Ent. 25: 122.

A male and female paratype of this well known species were recorded from Municipio de Galeana, Cerro Potosi, Mexico, by Ross (1944). It is also recorded from Texas, New Mexico, and California.

Limnephilus solidus (Hagen), new combination

Halesus solidus Hagen, 1861, Smiths. Misc. Coll. 4(1): 267; Ulmer, 1913, Deutsch. Ent. Zeitschr. 1913: 411.

This species remains known only from the original description of the female from Mexico. The type, if in existence, is not present in the Hagen material at the MCZ.

TREATMENT OF A RECREATION AREA LAKE FOR CONTROL OF BACKSWIMMERS

During the summer of 1962 a request was received for assistance on an insect problem in a small fresh-water lake at a day camp for girls located in a suburban area of Silver Spring, Maryland. The lake was being used for swimming instruction. The camp owner was concerned about severe biting attacks and wounds received by swimmers from a certain aquatic insect which often became trapped under their swimming suits.

Examination of the insect fauna in the lake by P. J. Spangler, Division of Insects, United States National Museum, disclosed the presence of various species of Hemiptera and Coleoptera as well as certain Megaloptera and Odonata. The lake was well populated with nymphs and adults of the backswimmer, *Notonecta undulata* Say (Notonectidae-Hemiptera), which turned out to be the insect that was biting the swimmers. This insect is a rather large backswimmer (7/16") and lives in all kinds of water from fresh to stagnant. It normally rests at the surface, floating head-down, with the tip of the abdomen piercing the surface film. This species is the most common species of backswimmer in the United States.

Since backswimmers repeatedly come to the water surface for air, it was decided to treat the surface of the lake with a kerosene-type spray. On the afternoon of July 20, the surface of the lake was treated with a spray containing pyrethrins 0.53% plus piperonyl butoxide 2.65%. The spray was applied at the rate of 1.9 gal./acre by means of a Hudson trombone-type hand-operated sprayer. Spraying was done from along the shore and piers which ran out into the water as well as from a canoe. The whole lake was covered with a coating of the oil spray. It appeared that thousands of backswimmers and water striders were killed very quickly by this treatment.

There was considerable concern that the spray might render the water unsuitable for swimming or that the insect or aquatic fauna killed by the treatment might cause an undesirable stench. There were no fish in the lake. The camp was not in general use on the weekend following the treatment. On the third day after treatment, the lake appeared to be nearly free of backswimmers. The oil by this time had disappeared from the water, which was now in splendid shape for swimming. On the day after treatment, the eyes of several swimmers were slightly irritated and light-colored swim suits were stained.

Although no quantitative results were determined, this first treatment gave a high degree of control of backswimmers without any apparent detrimental effect. Samples of the insect fauna taken with aquatic-type nets were made before and after treatment. There was no definite evidence that any species other than the backswimmers and water striders were affected appreciably by the treatment. The owners were greatly pleased with the results.

After 2 weeks, the backswimmers, mostly nymphs, were again present in the lake and the owner desired another treatment at a greater dosage. On August 3, the lake was treated with the same spray at the rate of 3.2 gallons per acre. Again a high degree of control was obtained. Before treatment, dippings with an insect net revealed an average of 4 backswimmers per dip. Three days following treatment the average was 1.5 per dip. The owners were highly satisfied with the control obtained, and the lake was suitable for swimming the rest of the summer.

From these two tests it was concluded that the backswimmer, *Notonecta undulata*, when in sufficient numbers to constitute a hazard to swimmers, could be controlled by a surface treatment of synergized pyrethrum spray. This treatment was made without upsetting the ecological balance of the lake. As far as could be determined this is probably the first time the backswimmers have been controlled by a specific treatment.—J. H. FALES, O. F. BODENSTEIN, and G. D. MILLS, JR., *Entomology Research Division, A.R.S., U. S. Department of Agriculture, Beltsville, Md.*